Parking

What All the Fuss is About

Evan Manvel and Sean Edging

Today's Meeting

Why parking reform matters (15 mins)

Case Studies: Salem, Albany, Bend, Independence (10 mins)

Past, current DLCD parking work and resources (10 mins)

Discussion: What should we be doing?

Parking: Many Issues

Off-street parking

Code mandates

Parking design and orientation

Parking's relation to bikeways, sidewalks

Pricing, meter technology, etc.

Residential parking (permits, etc.)

Parking in business districts

Event parking

Parking: Many Issues

Publicly subsidized parking garages

Tax treatment of parking lots & employer parking benefits

Storm water and heat island effects

Accessibility for those who cannot walk

Equity for those who do not drive

Bike parking

Dispersion of land uses

Current Policy Questions

How much car storage should cities be allowed to mandate in new residential and commercial developments?
(HB 2001 and Executive Order 20-04)

What can we do to reduce climate pollution from driving?
(Executive Order 20-04)

Why Parking Reform Matters

Old approach

Hide costs by mandating lots of parking (avoids conflict; hides costs)
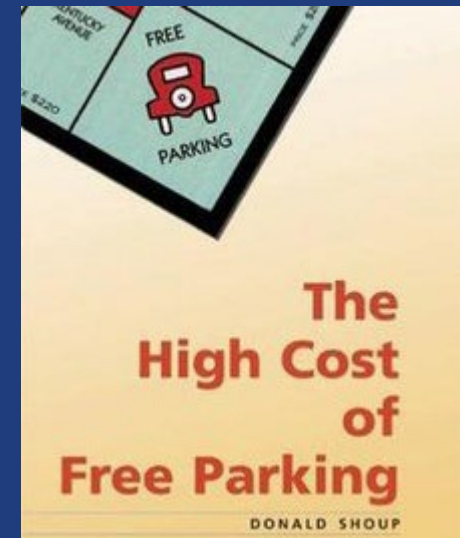
But now

Donald Shoup
Climate emergency
Housing cost problems
People experiencing homelessness
Changing demographics
Physical inactivity epidemic

The
High Cost
of
Free Parking

DONALD SHOUP

How Much Land is Used for Car Storage?

Corvallis, OR
11% for parking
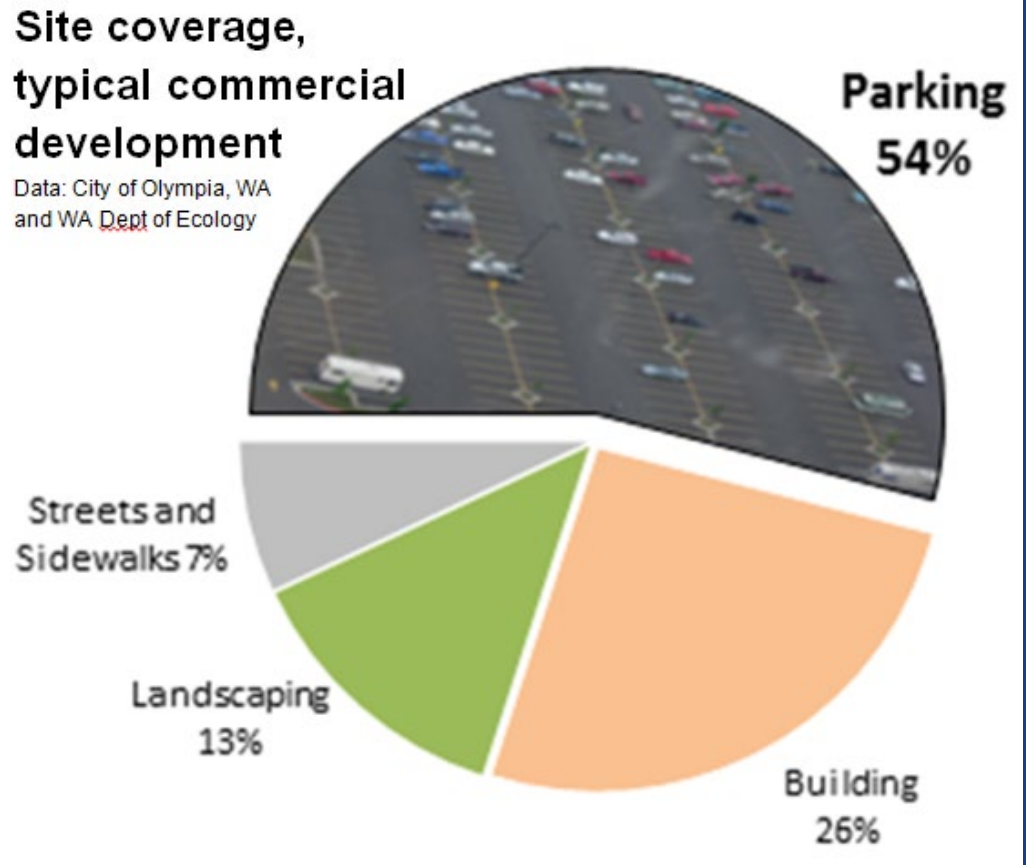## 10% for roads

Los Angeles, CA
14% for parking
10% for roads

PARKING SPACES per SQUARE MILE
- < 190
- 190 - 970
- 970 - 2,000
- 2,000 - 3,200
- 3,200 - 4,700
- 4,700 - 6,900
- 6,900 - 11,000
- > 11,000

ALL SPACES 2010
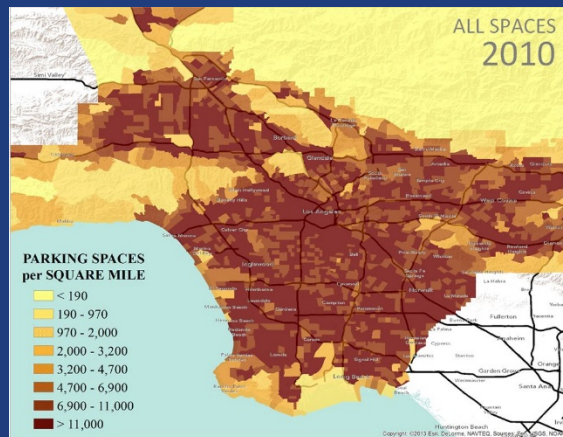
alleys	0.1%
buildings, OSU included	12.8%
building interiors	0.0%
buff	1.0%
decks	0.7%
driveways, gravel	0.2%
driveways, paved	3.1%
parking lot, gravel	0.9%
parking lot, paved	6.3%
path	1.4%
road, gravel	0.1%
roads, highway	0.9%
road, paved	8.7%
sidewalk	2.4%
Total Area Corvallis at 14.3 mi^2	

Olympia, WA
54% of land in commercial sites for parking

Site coverage, typical commercial development
Data: City of Olympia, WA and WA Dept of Ecology

Parking 54%

Streets and Sidewalks 7%

Landscaping 13%

Building 26%

Downtown Off-Street Parking in Corvallis

Conclusion:

Parking uses a huge amount of land

How Much Does Parking Cost and What Does that Effect?

Building a Parking Space
(not including land cost and opportunity cost)

Eugene: $42,000/space parking garage **(2018)**

Corvallis:$11,000/space surface **(incld. land)**
$62,000/space garage **(inc. land, debt)**

Surface off-street: $1,500 - $6,000
Residential garage: $15,000 - $20,000

On-Street: $2,000 to build
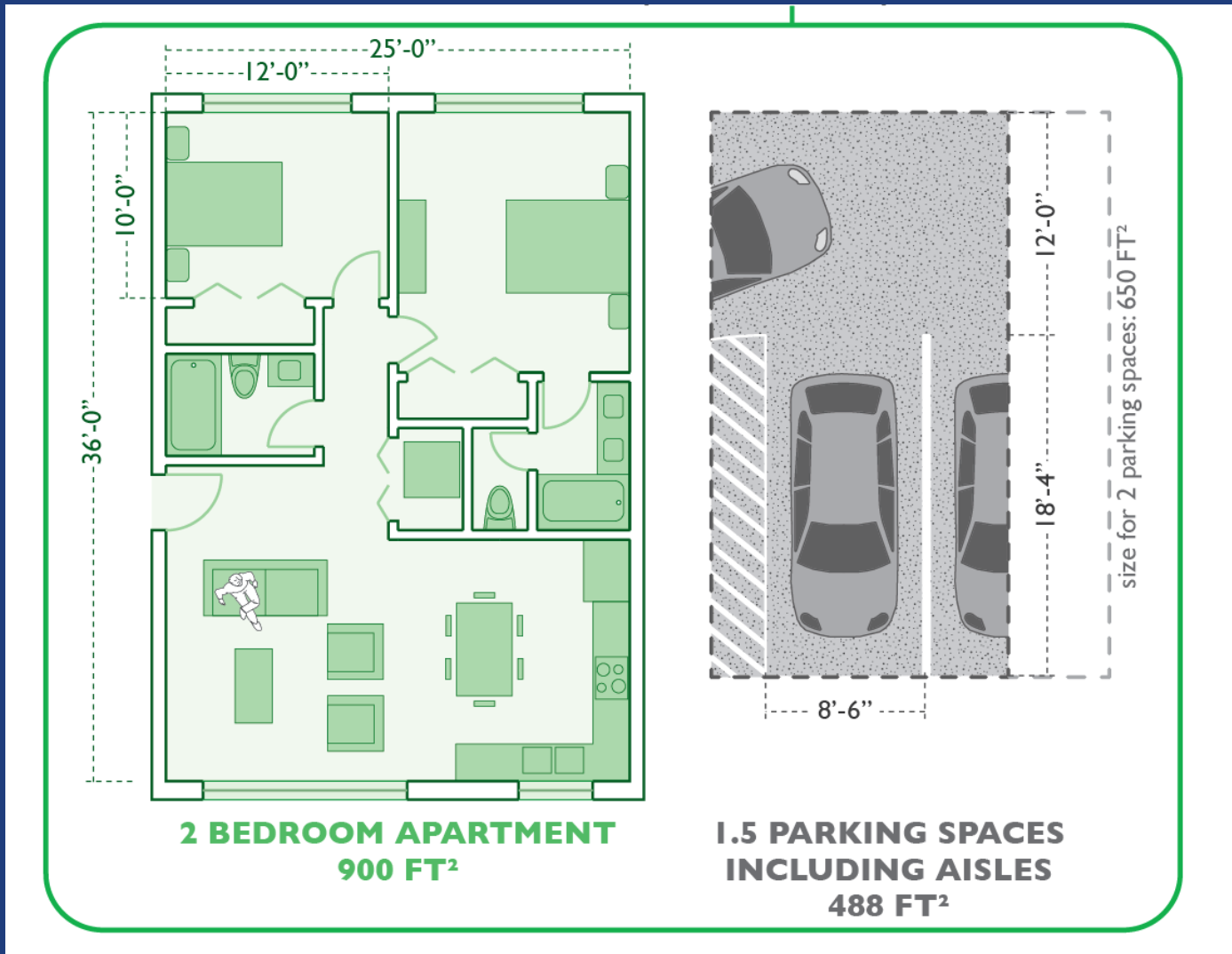**$400/year to maintain** **(MAPC, CT study)**

Lost Property Taxes

Each space cost Hartford, CT $1200/year in lost property taxes = $50 million/year
(University of Connecticut 2014)

Opportunity Cost and Land Cost *Sightline*

25'-0"
12'-0"
10'-0"
36'-0"

**2 BEDROOM APARTMENT
900 FT²**

12'-0"
18'-4"
8'-6"
size for 2 parking spaces: 650 FT²

**1.5 PARKING SPACES
INCLUDING AISLES
488 FT²**

Parking's Share of Housing Costs

Litman (2019):
10-20% of Total Housing Cost

Gabbe and Pierce (2016):
17% of Rent

These focus on parking in larger cities (often garages), but similar data exist for Corvallis

Choice:

House Cars or House People?

Oakland:
mandate for one space/unit
costs per apartment increased 18%;
30% fewer units built

18TH & WILLAMETTE
INTEGRATED FOURPLEX + 1 BE[...]
4 UNITS \ 1 BUILDING \ 1 LOT

Eugene

ZONING REQUIREMENTS		
MAXIMUM BUILDING COVERAGE	50%	ACTUAL BUILDING COVERAGE 34%
MAXIMUM # OF UNITS	2	ACTUAL # OF UNITS 4
MINIMUM # OF UNITS	none	ACTUAL # OF UNITS n/a
REQUIRED PARKING/DWELLING	1	ACTUAL PARKING/DWELLING 0.75

Affordable Housing Development
(King County WA)

**one space/unit
increases leasing costs 12.5%**

**two spaces/unit
increases leasing costs 25%**

**Parking means cities build
fewer affordable housing units**

Conclusion:

Parking is expensive and hurts housing choice
(particularly in larger cities)

How Much Built Parking is Unused?

Multifamily Developments

King County, WA: 40% avg. unused

Bay Area, CA: 28% avg. unused

Albany, OR: 30% avg. unused

Hillsboro, OR: 25% avg. unused

Best Predictors of Demand
(King County, WA)

Transit Frequency
Population & Jobs Density

Less so: bedroom count

Independent variable	Individual R Square	Stepwise R Square
Gravity measure of transit frequency	55.5%	55.5%
Percent of units designated affordable	27.6%	67.1%
Average occupied bedroom count	34.3%	73.7%
Gravity measure of intensity (population + jobs)	53.3%	76.2%
Units per residential square feet	17.1%	78.7%
Average rent	6.7%	80.0%
Parking price as a fraction of average rent	18.1%	81.0%

Table 1: Independent Variables and Summary of Regression Results.

Conclusion:

Lots of Built Parking is Wasted

Does Parking Supply Change How Much People Drive?

Best Evidence Thus Far: Yes

Bundled parking correlates with:

- ## Higher car ownership
- ## Higher rates of driving even with same car ownership

Parking behaviour: Bundled parking and travel behavior in American cities

Michael Manville*, Miriam Pinski

UCLA Luskin School of Public Affairs, Los Angeles, CA 90095, USA

ABSTRACT

We investigate the relationship between bundled residential parking and use of public transportation, and controlling for vehicle ownership. We the price of housing, the time and stress of finding parking near households with bundled parking to drive more and use transit less both households own vehicles. To date this idea has been difficult to exa this prediction using the public transportation module of the 2013 Am

Bundled parking and vehicle ownership: Evidence from the American Housing Survey

Michael Manville

University of California, Los Angeles
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Abstract: This article estimates the effect of bundled residential parking—parking whose price is included in the rent or purchase price of housing—on household vehicle ownership. Using data from the American Housing Survey, I show that the odds of households with bundled parking being vehicle-free are 50–75 percent lower than the odds of

Best Evidence Thus Far: Yes

Parking cash out leads to
- 20-25% less driving by employees

- [Evan needs to flesh out this slide]

Parking is Usually Bundled and Not Paid for Separately

96-99% of parking is bundled, meaning:
higher rents and home prices,
lower paychecks, higher prices,
non-drivers subsidize drivers

The economy picks up the tab for free parking - an enormous inducement to drive.

It Doesn't Have to Be This Way

Other Cities in the World Approach Parking Differently

On each site   vs.   Area management

Gov't mandated   vs.   Market provided

Excess parking   vs.   Meeting demand or limiting supply

Most cities have a parking *management* problem, not a parking *supply* shortage

People Want Parking Unicorns

200 square feet of space precisely at the place they want exactly when they want for no cost

Parking Management

Using parking management,
people can have a space
nearly where and *when* they need it.

For larger cities,
nearly at the price they want it.

Parking Management

1. Inventory parking supply

2. Check use levels

3. Devise management plan, including pricing and enforcement

Parking Reform

Parking Reform is a *Psychological* Problem

Zero as a Special Price: The True Value of Free Products

Kristina Shampanier
Massachusetts Institute of Technology, 38 Memorial Drive, E56-311, Cambridge, Massachusetts 02142, kshampan@mit.edu

Nina Mazar
Joseph L. Rotman School of Management, University of Toronto, 105 St. George Street, Toronto, Ontario M5S 3E6, Canada, nina.mazar@utoronto.ca

Dan Ariely
Duke University, One Towerview Road, Durham, North Carolina 27708, dandan@duke.edu

The Public Street in Front of Your House is Not Your Private Parking Space
(*unless so designated)

Walking a block or two is okay (even pleasant)

Spillover one place does not mean we should mandate excessive parking everywhere

It means we should better manage parking

No Mandated Parking
does not mean
No Provided Parking

Builders are nervous of risk and the unknown

Lenders are nervous of risk and the unknown

Experience shows builders will build parking

Builders Will Still Build Parking Tenants Demand

Portland: Apartment builders 0.7 spaces/unit

Seattle: 0.7 sp/unit in centers, transit corridors

Downtown LA: 1.2 spaces/unit

Salem: 1.75+ spaces/unit

Corvallis: 2+ spaces/unit

Eugene: lenders force downtown builders to build garage parking

Cities Across U.S. are Reducing Costly Parking Mandates

Case Study: Albany, OR

Reviewed development code in 2018

Councilors concerned about spillover parking

Hired Rick Williams Consulting to collect and present data about 16 sites

Case Study: Albany, OR

Average 30% unused; three sites fully used

Demand averaged 1.23 spaces/unit

Code remained the same

Case Study: Salem, OR

Updated multifamily code 2018-2020

City staff and consultant decided to reduce parking mandate

Salem resident pushed for further reforms

Council voted to eliminate mandates in downtown and within ¼ mile of frequent transit

Salem – Keys to Success

Two council champions

Developers reassuring they'd still build parking

Addressing parking during debate where other things are more controversial

Generally supportive staff

Previous council experience reducing parking for a downtown development

Salem – Keys to Success

Combining progressive, anti-regulatory votes

Splitting votes into multiple issues and motions

Councilor	Andersen	Ausec	Mayor Bennett	Hoy	Kaser	Leung	Lewis	Nanke	Nordkye
Motion									
To eliminate mandates in downtown	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes
To eliminate mandates everywhere	Yes	No	No	No	Yes	No	No	Yes	Yes
To eliminate mandates near transit	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes
To eliminate mandates for SROs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	100%	75%	25%	50%	50%	25%	50%	100%	100%
"progressive" average	67%								
"conservative" average	58%								

Case Study: Bend, OR

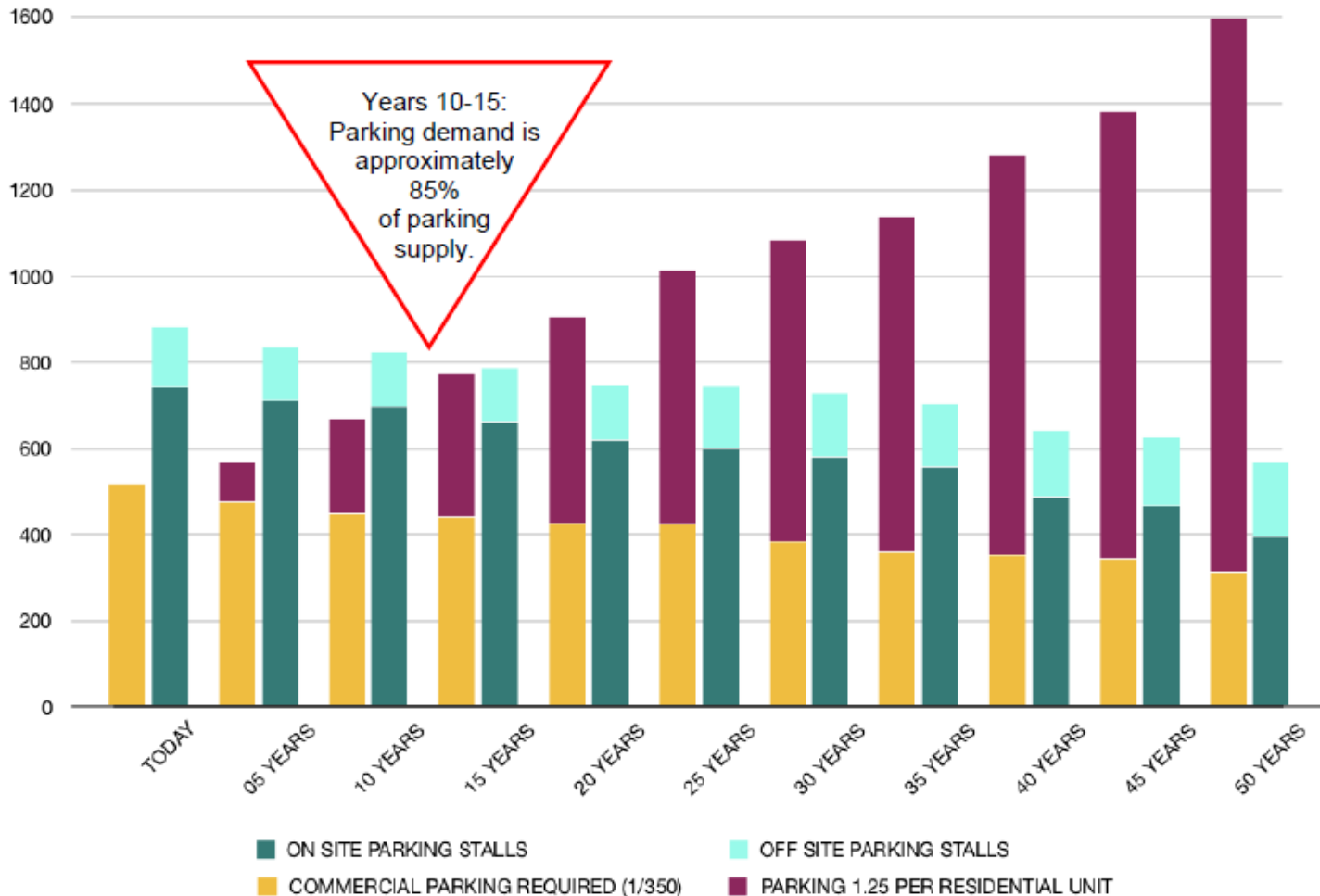**Trying to redevelop a neighborhood near downtown (Bend Central District)**

Little redevelopment or concerns about parking

Waived parking mandates for up to 10,000 sq. feet building footprint

Able to revisit if parking gets scarcer

Case Study: Bend, OR

Figure 7. Proposed Code, Higher Parking Demand Scenario

Years 10-15:
Parking demand is approximately 85% of parking supply.

Legend:
- ON SITE PARKING STALLS
- OFF SITE PARKING STALLS
- COMMERCIAL PARKING REQUIRED (1/350)
- PARKING 1.25 PER RESIDENTIAL UNIT

Anecdote: Independence, OR

Got a call about "parking problem"

Laura and Evan talked it through with staff and gave presentation to downtown interests

Parking problem was:

- One block in each direction from the main intersection
- One business owner parking in front
- Loading zones
- Event parking

Seattle reform
2012-2017 saved $537 million

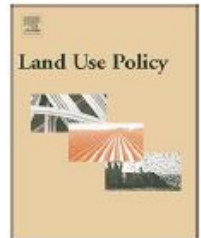### Parking policy: The effects of residential minimum parking requirements in Seattle

C.J. Gabbe[a,*], Gregory Pierce[b], Gordon Clowers[c]

[a] Department of Environmental Studies and Sciences, Santa Clara University, 500 El Camino Real, Santa Clara, CA, 95053, United States
[b] Luskin Center for Innovation, Luskin School of Public Affairs, University of California, Los Angeles 3250 Public Affairs Building, Box 951666, Los Angeles, CA, United States
[c] Seattle Department of Construction and Inspections, City of Seattle, 700 Fifth Ave., Suite 2000, P.O. Box 34019, Seattle, WA, 98124-4019, United States

ARTICLE INFO

ABSTRACT

DLCD Work

TGM Publications (Old and New)

TGM Projects
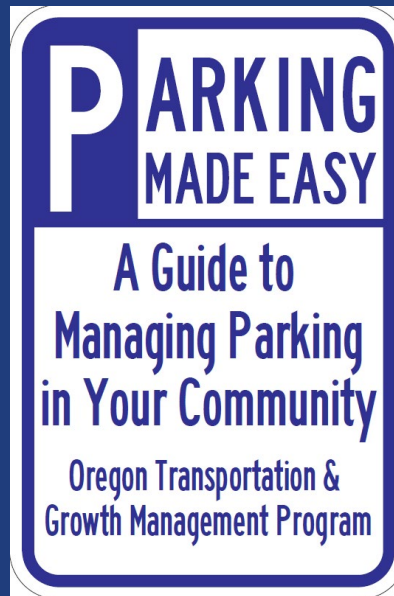
TGM Presentations

Code Assistance & Parking Codes

HB 2001 Model Code and Compliance

TPR/STS Review

TGM Publications

www.oregon.gov/LCD/TGM/Pages/Parking.aspx

Management
Parking Made Easy:
A GUIDE TO TAMING THE
DOWNTOWN PARKING BEAST

PARKING MADE EASY
A Guide to Managing Parking in Your Community
Oregon Transportation & Growth Management Program

8 Quick Ways Cities Can Improve Parking Codes

Is your community concerned about housing costs, the cost of doing business, walkability, climate pollution, historic preservation or age-friendly development? Have you seen wasted land, turned away restaurant proposals in downtowns, or wished housing was cheaper to build?

There's something easy you can do – improve your parking code. Parking requirements affect all of these issues. While a thorough updating of parking codes is in order for most cities, these improvements can be made quickly.

Eight things cities can do today:

1. Allow required parking to be off-site, within walking distance

ODOT TGM DLCD
TRANSPORTATION AND GROWTH MANAGEMENT
Downtown Parking Management
A Powerful Tool to Meet Community Goals

The Costs of Mismanaged Parking
Storing cars is an expensive challenge

If all the spots are taken, customers may choose to shop elsewhere.

If there's too much parking, a place becomes uninviting.

Lost Business
Customers want to get to businesses. If parking is poorly managed, and all the spots are taken, customers may shop elsewhere. But *too much* parking can also harm businesses, by degrading the walking environment in local business districts. If an area is dominated by parking lots, people will park only at the place they were planning on going and leave directly, instead of parking nearby, walking past other businesses, and lingering downtown.

Cities should aim to get supply just right – not too much, but enough. Some call this the Goldilocks challenge of parking: don't give too much, or too little

A Strategic Guide to Implementing
Parking Reform
ODOT TGM DLCD
TRANSPORTATION AND GROWTH MANAGEMENT

Reducing costly parking mandates can be a challenging task for planners and decision-makers.

Too often, the politically easiest thing to do is to continue the pattern of the past: force new development to provide excessive parking, avoiding potential conflict with those accustomed to abundant, "free" (subsidized) parking. This conveniently hides the large costs of parking, but makes it harder to walk and easier to drive, artificially driving up the demand for parking and the costs of housing, doing business, and getting around.

How to break the cycle? Here are some recommendations on how cities might go about reforming the extremely costly, counter-productive market distortion of mandated car parking.

Language

A Strategic Guide to Implementing

Parking Reform

Reducing costly parking mandates can be a challenging task for planners and decision-makers.

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How to break the cycle? Here are some recommendations on how cities might go about reforming the extremely costly, counter-productive market distortion of mandated car parking.

Don't Say	Instead Use
Parking requirements	Costly parking mandates
Parking needs	Parking demand
Free parking	Subsidized (or unpriced) parking
Developers	Local builders and contractors
Parking	Car storage (occasionally)

You Won't Believe #7!

8 Quick Ways Cities Can Improve Parking Codes

Is your community concerned about housing costs, the cost of doing business, walkability, climate pollution, historic preservation or age-friendly development? Have you seen wasted land, turned away restaurant proposals in downtowns, or wished housing was cheaper to build?

There's something easy you can do – improve your parking code. Parking requirements affect all of these issues. While a thorough updating of parking codes is in order for most cities, these improvements can be made quickly.

1. Allow parking to be off-site

2. Count curbside frontage to count toward mandates

3. Waive mandates for low-car housing types

4. Waive mandates for renovation and small business

5. Set mandates no higher than 1/unit (0.5 for studios)

6. Allow shared parking

7. Require parking unbundling

8. Have a fee-in-lieu program

Unbundling Parking

Stop requiring people to pay for other people's parking (lease it separately)

Unbundled New Multifamily Required In:

Santa Monica, Berkeley, Seattle, Oakland, San Francisco, San Diego

TGM Projects

**Banks parking management
(trail visitors and downtown)**

**Often a theme in projects
(e.g. Klamath Falls downtown)**

Presentations

Independence presentation 2019

Oregon Main Streets Conference 2019

Corvallis presentation Feb 2020

HB 2001 TAC/RAC presentations Mar 2020

Panels proposed for OAPA and League of Oregon Cities conferences 2020

Code Assistance

Offered parking code review Feb 2019 completed for Gladstone and Tigard

**Cascade Locks Code Assistance
No mandates downtown**

**Madras current code project
(1 space/residential)**

House Bill 2001

Rulemaking

Medium Cities – Duplex on each lot or parcel

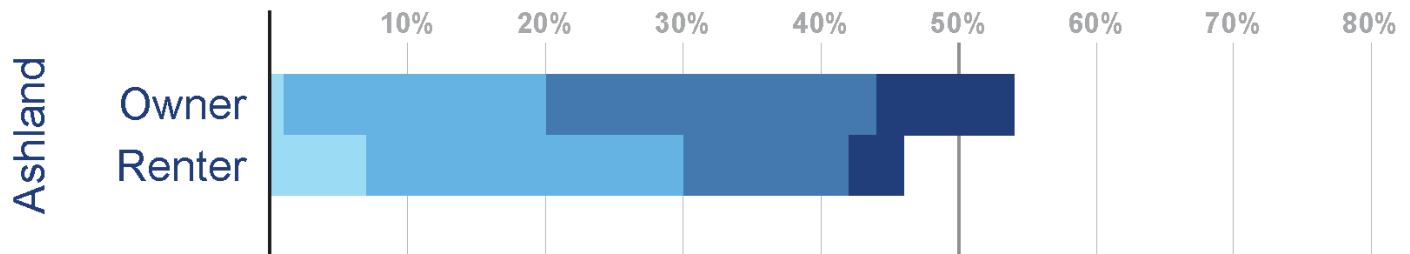**Model Code**

Does not require provision of off-street parking

Administrative Rules

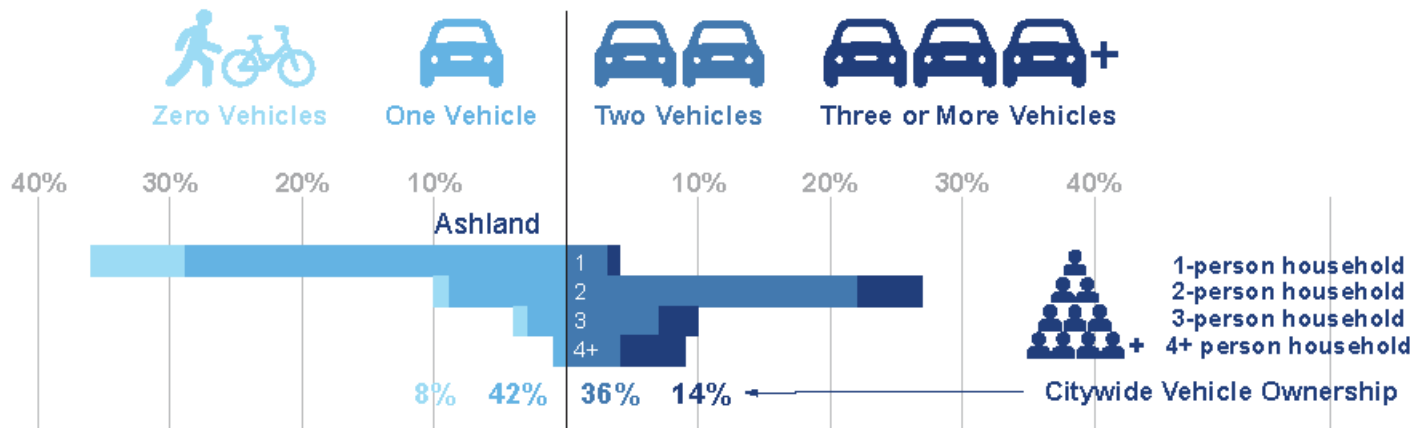Allows a minimum requirement between 0 and 2 off-street parking spaces for a duplex

Anticipated Demand
American Community Survey 2013-2017

Tenure

Ashland
- Owner
- Renter

10% 20% 30% 40% 50% 60% 70% 80%

Household Size

Zero Vehicles | One Vehicle | Two Vehicles | Three or More Vehicles

40% 30% 20% 10% Ashland 10% 20% 30% 40%

1
2
3
4+

1-person household
2-person household
3-person household
4+ person household

8% 42% 36% 14% ← Citywide Vehicle Ownership

Vehicle Ownership

Key Findings

Tenure (Table B25044)
- **Renter vs Owner**

Household Size (Table B08201)
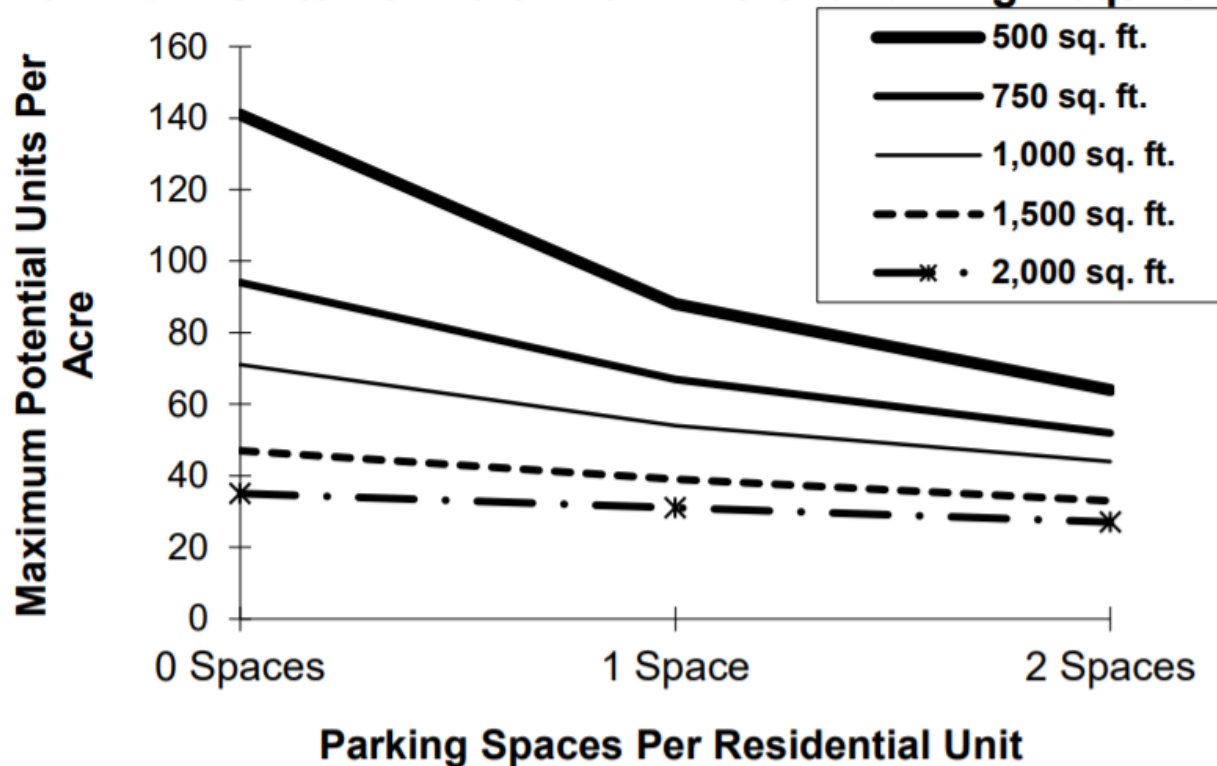- **Small vs Large Households**

Regional Variation in Vehicle Ownership
- **Metro vs Non-Metro Jurisdictions**

Housing Lost

Maximum Units Per Acre With Different Parking Requirements

Legend:
- 500 sq. ft.
- 750 sq. ft.
- 1,000 sq. ft.
- 1,500 sq. ft.
- 2,000 sq. ft.

Y-axis: Maximum Potential Units Per Acre (0 to 160)

X-axis: Parking Spaces Per Residential Unit (0 Spaces, 1 Space, 2 Spaces)

Maximum potential density declines as the number of surface parking spaces increases. This impact is proportionally largest for smaller units. (Assumes 300 sq. ft. per parking space, 90% land coverage, 10% common areas, 2 story buildings.)

Executive Order 20-04

3. **General Directives to State Agencies**. From the date of this Executive Order, the state commissions and state agencies listed in paragraph 1 are directed to take the following actions:

A. GHG Reduction Goals. Agencies shall exercise any and all authority and discretion vested in them by law to help facilitate Oregon's achievement of the GHG emissions reduction goals set forth in paragraph 2 of this Executive Order.

B. Expedited Agency Processes. To the full extent allowed by law, agencies shall prioritize and expedite any processes and procedures, including but not limited to rulemaking processes and agency dockets, that could accelerate reductions in GHG emissions.

C. Agency Decisions. To the full extent allowed by law, agencies shall consider and integrate climate change, climate change impacts, and the state's GHG emissions reduction goals into their planning, budgets, investments, and policy making decisions. While carrying out that directive, agencies are directed to:

(1) Prioritize actions that reduce GHG emissions in a cost-effective manner;

(2) Prioritize actions that will help vulnerable populations and impacted communities adapt to climate change impacts; and

(3) Consult with the Environmental Justice Task Force when evaluating climate change mitigation and adaptation priorities and actions.

Minimum Parking and Automobile Mode Share
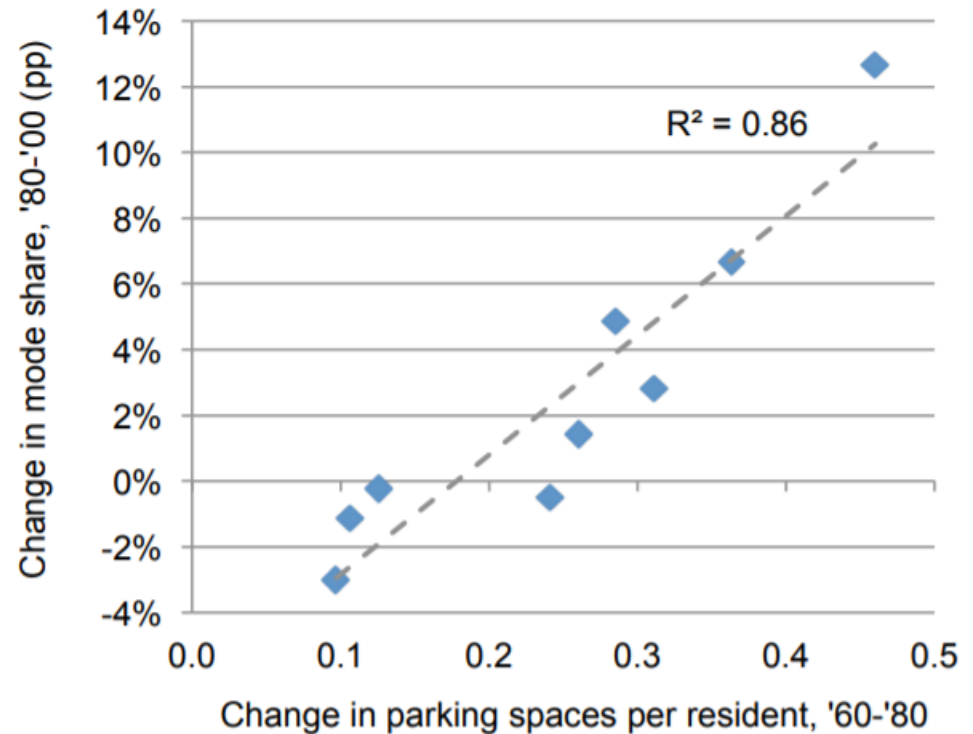
Source: McCahill, C. T., Garrick, N., Atkinson-Palombo, C., & Polinski, A. (2016). Effects of parking provision on automobile use in cities: inferring causality.

Implications for Rulemaking

- Perceived demand not supported by best-available data

- The cost imposed by minimum parking requirements:
    - Costs thousands of dollars per space (more for garage/covered)
    - Imposes disproportionate cost on households with limited means
    - Results in fewer units, especially smaller and more affordable units

- Compelling evidence that minimum parking *causes* increased automobile mode share
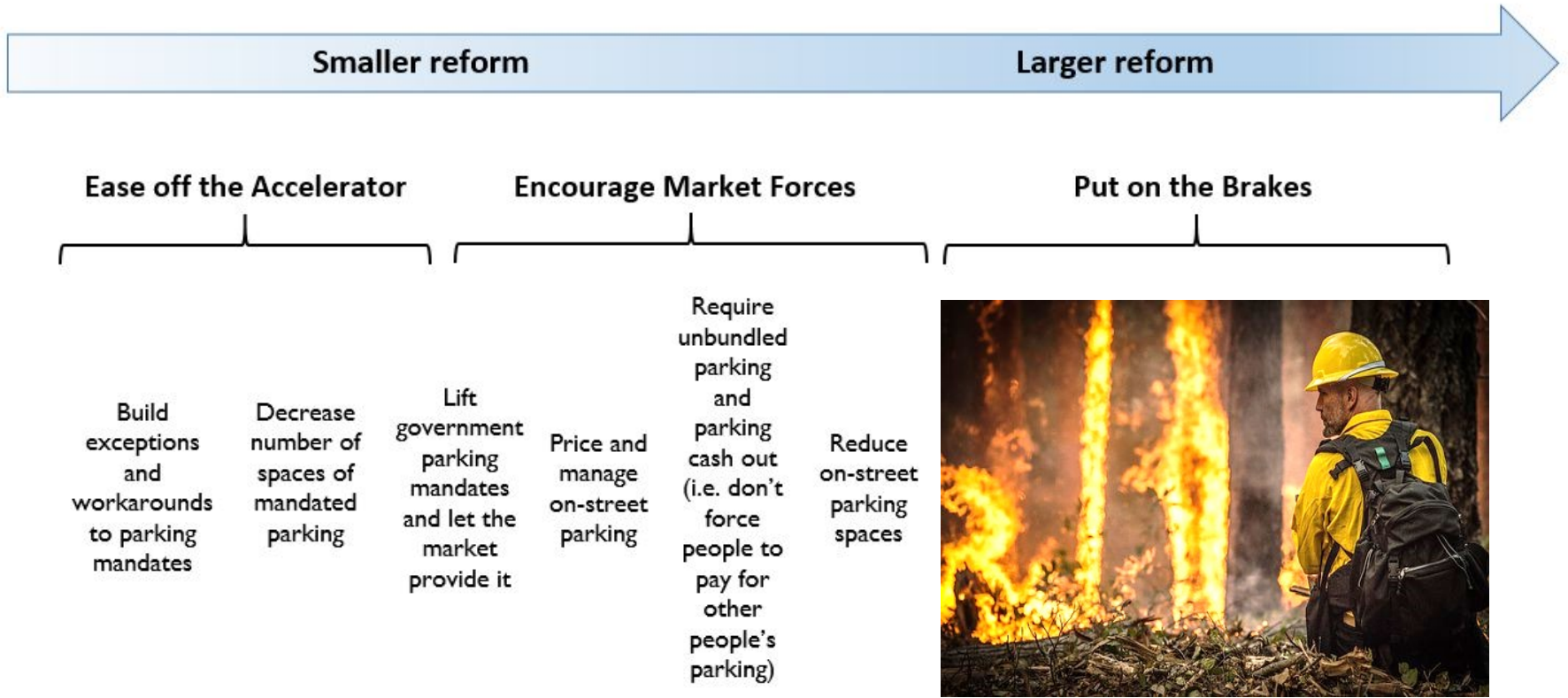
Discussion

Questions on presentation?

What more should DLCD be doing?

Where's the biggest impact?

End of Presentation

(excess slides remaining for potential question answers)

Reforming How Government Treats Cars: A Scale

Smaller reform → Larger reform

Ease off the Accelerator

Encourage Market Forces

Put on the Brakes

Build exceptions and workarounds to parking mandates

Decrease number of spaces of mandated parking

Lift government parking mandates and let the market provide it

Price and manage on-street parking

Require unbundled parking and parking cash out (i.e. don't force people to pay for other people's parking)

Reduce on-street parking spaces

Corvallis Parking Prices

Market Price

(non-central storage place)
Inside: $2688/year ($224/month)
Outside: $1068/year ($89/month)

City Price

Residential permits: $25/year ($2/month)
7 cents a day

Corvallis

One-bedroom apt $800/month
One car: $90 = 11% of rent

Two-bedrooms $1,300/month
Two cars: $180 = 14% of rent

(Craigslist search 1/15/2020)

Corvallis Car Ownership

Renter Households

16% have no car
44% have one
28% have two
13% have 3+

Owner Households

10% have no car
38% have one
37% have two
15% have 3+

| Independent variable	Individual R Square	Stepwise R Square
Gravity measure of transit frequency	55.5%	55.5%
Percent of units designated affordable	27.6%	67.1%
Average occupied bedroom count	34.3%	73.7%
Gravity measure of intensity (population + jobs)	53.3%	76.2%
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Average rent	6.7%	80.0%
Parking price as a fraction of average rent	18.1%	81.0%

Table 1: Independent Variables and Summary of Regression Results.

Lots of variation and factors
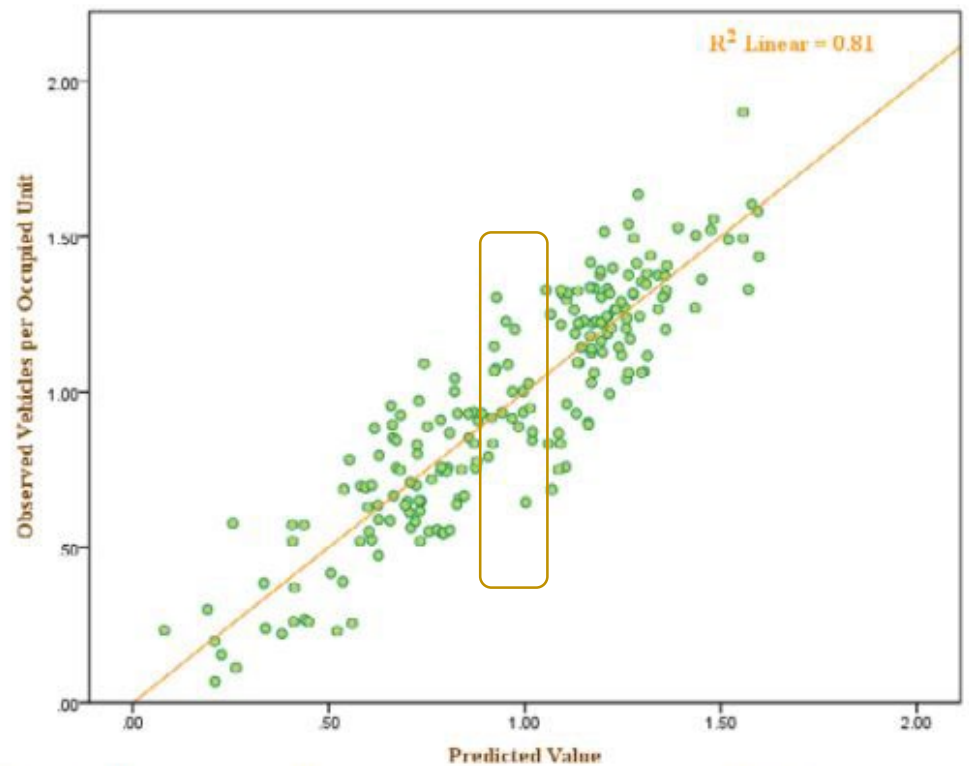
Fig. 3: Observed vehicles per occupied unit versus modeled value.
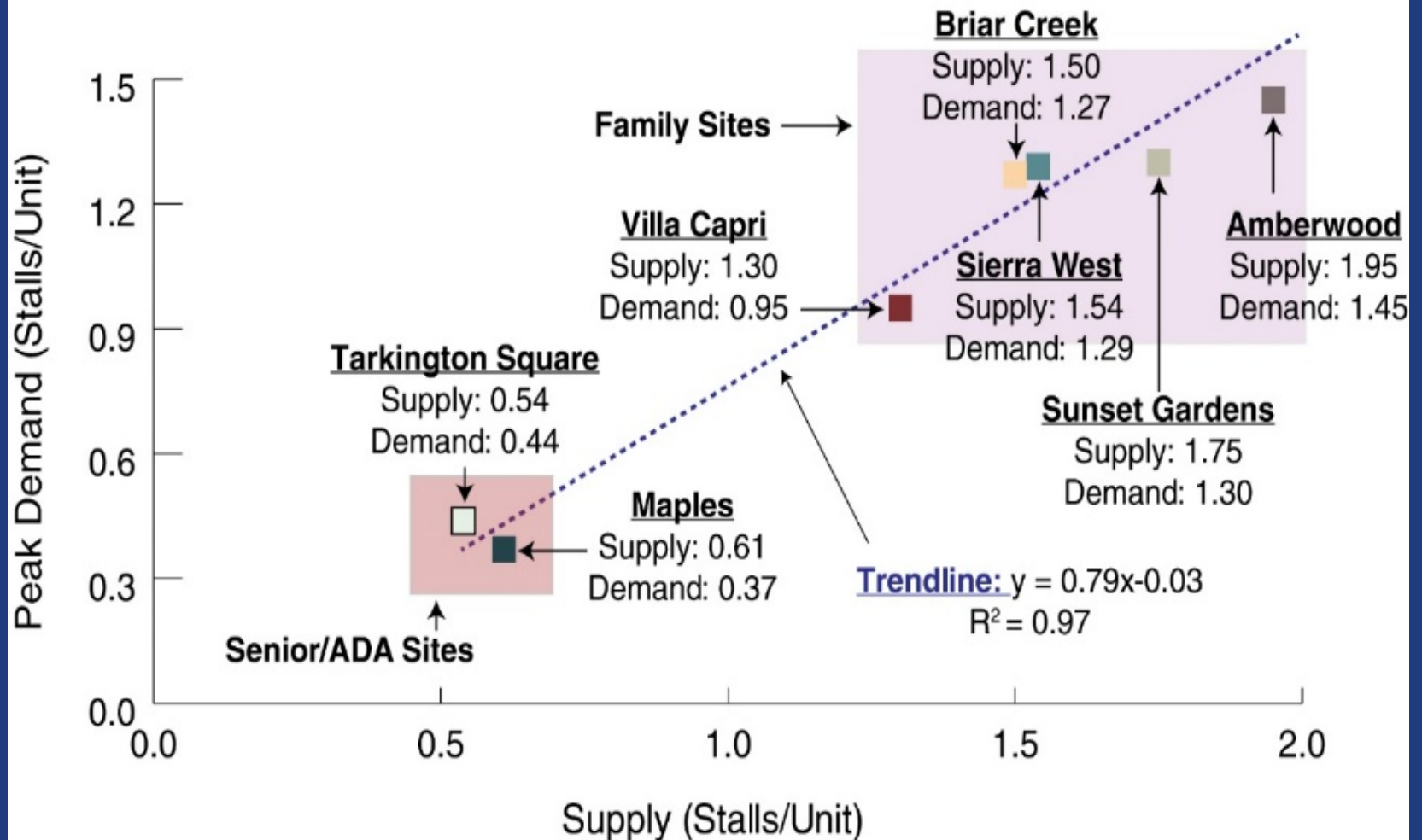
Hillsboro Parking Data from Lancaster Engineering

Lost Housing Opportunities

San Francisco:

houses without off-street parking $46,000 less than with

affordable to 24% more households (1997)

Current Land Development Code

4.1.30 - OFF-STREET PARKING REQUIREMENTS

1. Single Detached and Manufactured Homes

Two spaces per dwelling unit.

2. Single Attached - Zero Lot Line

1) One, Two, or Three-bedroom Unit - **Two** spaces per unit.

2) Four-bedroom Unit - **3.5 spaces** per unit.
3) Five-bedroom Unit - **4.5 spaces** per unit.

Current Land Development Code

Single Detached with more than one dwelling unit on a single lot, Duplex, Attached, and Multi-dwelling –

1) Studio or Efficiency Unit - **One** space per unit.

2) One-bedroom Unit - **One** space per unit.

3) Two-bedroom Unit - **1.5** spaces per unit.

4) Three-bedroom Unit - **2.5** spaces per unit.

5) Four-bedroom Unit - **3.5** spaces per unit.

6) Five-bedroom Unit - **4.5** spaces per unit.

Corvallis Land Development Code

l. Bedroom Size Determination - Multi-dwelling units having a bedroom in excess of 160 sq. ft. shall provide added vehicle and bicycle parking of 0.5 parking spaces per oversized bedroom.

m. Fractions - When the calculated sum of the required vehicle and/or bicycle parking spaces includes a fraction equal to or greater than one half of a space (0.5 or more), a full space shall be required. If the fraction is less than 0.5, an additional space shall not be required.

Corvallis Land Development Code

I. Bedroom Size Determination - Multi-dwelling units having a bedroom in excess of 160 sq. ft. shall provide added vehicle and bicycle parking of 0.5 parking spaces per oversized bedroom.

Recommended Reforms (1)

Remove parking mandates

and
manage on-street parking

Recommended Reforms (1a)

If not repeal:

- ✓ **Reduce mandates**

- ✓ **Expand exemptions**

- ✓ **Provide flexibility**

Reduce Mandates

No more than 0.5 space per studio and one-bedroom apartment, any downtown unit and

No more than 1 per larger unit

Expand Exemptions

Target What You Want and Exempt It from Costly Parking Mandates

- ✓ **Affordable Housing**

- ✓ **Senior Housing**

- ✓ **Historic Building Reuse**

- ✓ **Small Businesses**

- ✓ **Transit-Oriented Housing**

- ✓ **Downtown Housing**

- ✓ **Bike-Oriented Housing**

- ✓ **Reuse of Long-Vacant Buildings**

Recommended Reforms

Provide Flexibility

- ✓ **Allow Off-Site Parking**
- ✓ **Allow Street Frontage to Count**
- ✓ **Allow Shared Parking**
- ✓ **Round Down**
- ✓ **Remove Big Bedroom Boost**

Corvallis Land Development Code Already Does Some of This

Location of Required Parking - Required parking shall be provided on property located within the Central Business (CB) and Riverfront (RF) Zones and within 750 feet of any new development.

Corvallis Land Development Code Starts to Do This Already

1. A reduction of up to 10 percent … if a transit stop… is located on-site or within 300 ft.

2. A reduction of up to 10 percent… For every 8 required bicycle parking spaces… can reduce one space

(Ashland allows up to 50% less)

Corvallis Land Development Code

Parking: 884 mentions

4.1.10 - PURPOSES to provide appropriate location and design of parking…. provide sufficient parking in close proximity to the various uses for residents, customers, and/or employees; and to maintain traffic carrying capacity of nearby streets.

Corvallis Land Development Code

o. Maximum Parking Allowed - No site shall be permitted to provide more than 30 percent in excess of the minimum offstreet vehicle parking required by Section 4.1.30, below, except as provided in "p," below, and in Section 4.1.30.g.3.b.
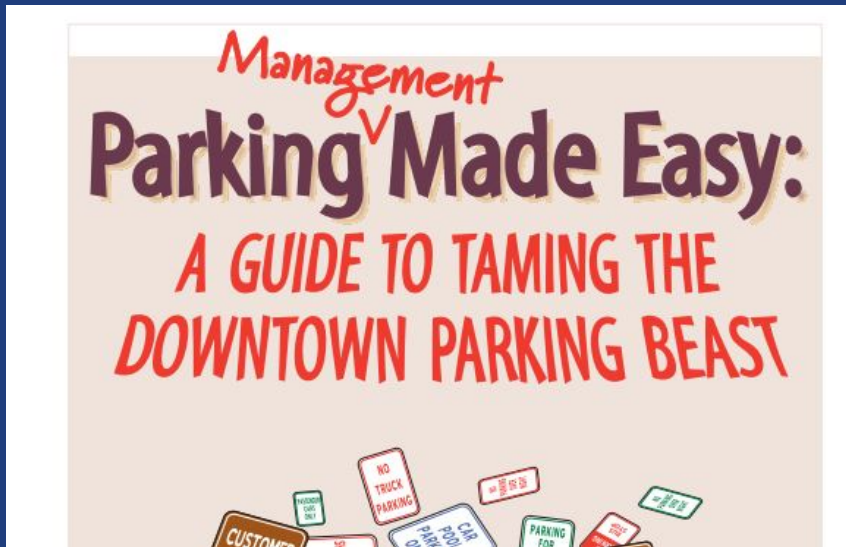
Parking Management

**People regularly walk significant distances from where they park – but sometimes don't perceive it.
(The Mall)**

Inventory

Perceptions are questionable

Data are key

Figure 5. Parking At or Near Capacity by Time of Day and Street Segment

Street	Location	9AM	10AM	11AM	12AM	1PM	2PM	3PM	4PM	5PM
Second	Vine to Ash	◆	◆	◆						
Second	Ash to Sherman			◆						
Second	Sherman to Grant							◆		◆
Second	Grant to Maple					◆	◆	◆		
Second	Maple to Oak					◆				
Second	Oak to A					◆	◆			
Main	Ash to Sherman							◆	◆	◆
Main	Sherman to Grant		◆				◆			
Park	Sherman to Grant	◆	◆			◆	◆			◆
Maple	3rd to 2nd	◆		◆				◆	◆	
Maple	2nd to Main				◆	◆	◆	◆		
Maple	Park to Grove	◆	◆			◆	◆	◆		

Northwest U.S.

At least 2.2 parking spots per car
Worth about $6,000 each

$13,000+ per car

Parking is worth more than our cars
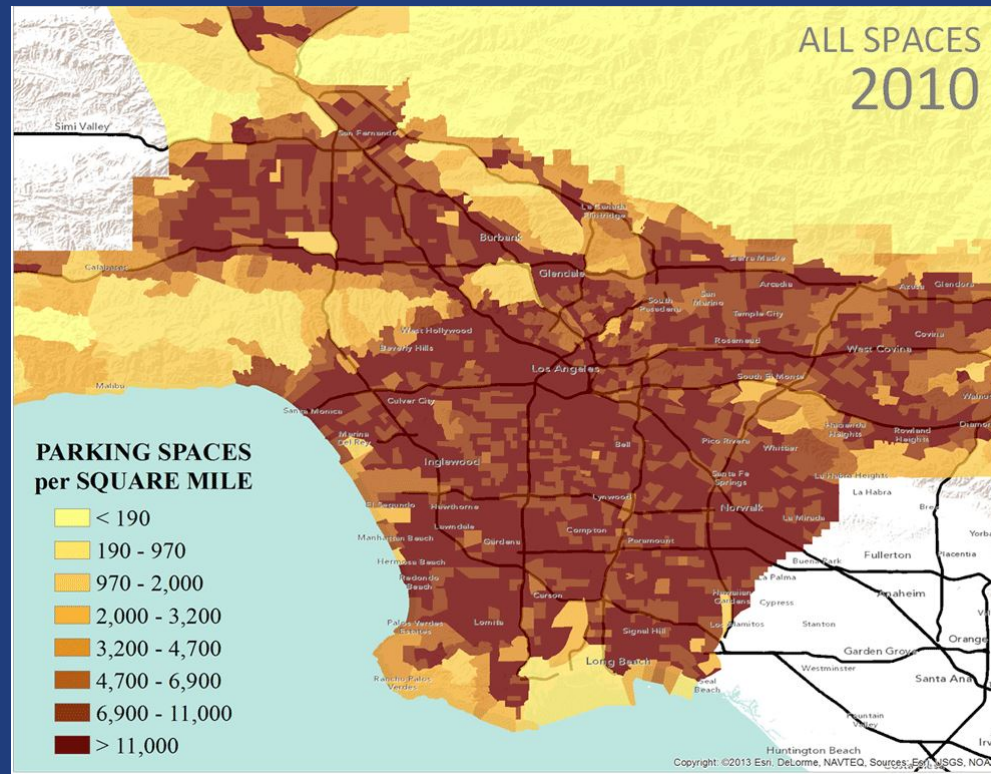
(Sightline Institute 2013; adjusted for inflation)

The cost of parking? 1.2 to 3.7% of GDP, about $1250 per person

Mark Delucchi,
University of California, Berkeley

Los Angeles County:
14% of all land is parking, 10% for roads

National Study:

Up to 27 parking spots per household Costing $6,500 to $192,000 per household

City	New York	Philadelphia	Seattle	Des Moines	Jackson, WY
Total Parking Spaces	1.85 million	2.2 million	1.6 million	1.6 million	100,119
Parking density per acre	10.1	25.3	29.7	28.4	53.8
Parking spaces per household	0.6	3.7	5.2	19.4	27
Total replacement cost of parking	$20.1 billion	$17.5 billion	$35.8 billion	$6.4 billion	$711 million
Parking cost per household	$6,570	$29,974	$117,677	$77,165	$192,138